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"The plant was first found (a single specimen) by Mr. C. A. Shore, on the trunk of a cedar tree (*Juniperus virginiana*), growing with moss. Since that time I have found it repeatedly (as has also Mr. Shore) sometimes in large numbers (a score or more), and always on the trunks of trees growing with moss. It often occurs in association with *Lycoperdon leprosum* as the same situation is affected by both. The Geaster never grows in close clusters, but the individuals are scattered here and there at varying distances. It seems to grow indifferently on almost any tree where moisture conditions are favorable. I have found it on Ulmus, Hicoria and Juniperus. The mycelium penetrates the old bark and extends itself abundantly between the planes of cleavage."

The species may be described as follows:

Geaster leptospermus Atkinson & Coker, n. sp. Plants occurring singly or gregarious, oval to globose. Peridium 3-4.5 μ in diameter, outer layer closely attached to the moss and bark of the tree by numerous mycelial threads. Outer peridium splitting radially into 3-4 rays, its inner and outer layer then separated by a plane of cleavage, the inner layer being everted, leaving the outer layer in the form of a thin membranous cup with a stellate margin, points of the inner layer remaining attached to the points of the rays of the outer layer, its inner face minutely granular, white or with a flesh colored tinge. Inner peridium sessile or only very slightly pedicellate, 2.5-3.5 μ in diameter, globose and borne aloft by the eversion of the inner layer of the outer peridium, as in other fornicate species of the genus; mouth well defined, not sulcate nor striate, but marked by distinctly radiate silky threads, opening at maturity by a minute perforation; surface whitish or pale lead color, the area about the mouth white. Capillitium abundant, whitish or pale yellowish-brown, extending from the inner surface of the inner peridium towards the center; threads straight or very flexuous and irregular, simple or sometimes branched, 2-6 μ in diameter. Spores very minute, 1.5-2.5 μ in diameter, white or pale yellowish-brown, smooth, that is, not tuberculate nor echinulate, but often irregular and sometimes rather strongly angled, 3-4 angles in side view.

On moss covered dead bark of living trees (*Juniperus virginiana* Hicoria, Ulmus, etc.), woods, Chapel Hill, N. C.—GEORGE F. ATKINSON, *Cornell University, Ithaca, N. Y.*

TILLETIA IN THE CAPSULE OF BRYOPHYTES.

It has been known for several years that the capsules of certain mosses and liverworts are sometimes attacked by fungous parasites that

fill these structures with a mass of mycelium, which develops small spores as in the Ustilaginales. These spores were first described for Sphagnum by Schimper in 1858 as "microspores," which he supposed to result from the extensive division of the spore mother-cells. Nawaschin, however, in 1892, determined the "microspores" to be derived from a fungus, which he regarded as probably a *Tilletia* and named *Tilletia* (?) *sphagni*. In the absence of information on the methods of spore germination, the exact position of the fungus must remain uncertain.

Cavers² has found a similar fungus in the capsule of *Pallavicinia Lyellii*, whose spores had also previously been called "microspores" by Warnstorf in 1887, and similar conditions were found in *Pallavicinia hibernica*. Cavers, however, presents no details of their structure and development.

The earliest observations on fungous mycelium in the liverworts seem to have been those of Leitgeb on several forms in the Jungermanniales.³ He determined that the fungus entered the neck of fertilized archegonia and that the infected sporophytes, after a short period of irregular growth, remained abortive, the cavity becoming filled with mycelium in which spores were formed by abstriction.

The most recent contribution to the subject is by H. and P. Sydow⁴ who have found this *Tilletia*-like fungus in the sporophyte of *Anthoceros dichotomus*, and named it *Tilletia* (?) *abscondita*. Nothing is known, however, of the development of this form.

Botanists are probably not generally aware that the liverwort, *Ricciocarpus natans*, harbors a parasite which appears to be similar to this *Tilletia* (?) described in the other bryophytes. I have repeatedly met it in the preparations of my classes where this liverwort was under observation. The infected capsules fail to mature and the interior becomes filled with small spores. These fungi offer an attractive field for investigation and their life history, completely studied, would clear up a very confused subject.—BRADLEY M. DAVIS, *The University of Chicago*.

² CAVERS, On saprophytism and mycorrhiza in Hepaticae. *New Phytologist* 2: 30. 1903.

³ Untersuchungen über die Lebermoose 2: —.

⁴ SYDOW, H. and P., Die Mikrosporen von *Anthoceros dichotomus* Raddi, *Tilletia abscondita* Syd. nov. spec. *Ann. Mycologici* 1: 174-76. 1903.